WHEELBARROW BRAKE SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO A MICROFICHE APPENDIX

Not Applicable.

BACKGROUND OF THE INVENTION

TECHNICAL FIELD

This invention relates to brake systems and, more particularly, to a wheelbarrow brake system including a plurality of pivotable brake levers selectively operable by a brake handle.

PRIOR ART

Wheelbarrows are universally utilized in the construction industry for transporting building materials, such as bricks, sand, and mortar from one place to another on a construction site. A wheelbarrow load of the above-mentioned materials may weigh several hundred pounds, yet the operator must often push a fully loaded wheelbarrow under his own power up inclines, such as walkways, leading from one construction level to another.

Even more difficult is the task of handling a loaded wheelbarrow on a decline. Not only does an operator have to guide the wheelbarrow, but because of the inertia generated from the downward movement of the heavy load, the operator must actually exert pull opposite the direction of movement to prevent the wheelbarrow from moving too fast. In some instances the load may be too heavy to be controlled in the above manner. As a result, the operator may lose control of the wheelbarrow, whereupon it continues down the decline out of control, risking damage to property and injury to

others nearby.

In an effort to solve the aforementioned problems, prior art attempts have been proposed for wheelbarrows or other material handling vehicles to permit the operator to more easily control the speed thereof on a decline. However, such previously proposed brake mechanisms have been inadequate and have presented problems in guiding or controlling the vehicle while operating the brake mechanism.

BRIEF SUMMARY OF THE INVENTION

In view of the foregoing background, it is therefore an object of the present invention to provide a wheelbarrow brake system that is easily operable and overcomes the above-mentioned shortcomings. These and other objects, features, and advantages of the invention are provided by a human powered vehicle including a frame and a wheel connected thereto. A brake system includes a plurality of elongate mounting brackets having opposed end portions connected to the frame of the wheelbarrow and an axle passing through the wheel, respectively, so that the plurality of mounting brackets become disposed on opposite sides of the wheel.

The brake system further includes a plurality of levers including first end portions pivotally connected to the plurality of mounting brackets, respectively. The plurality of levers further include second end portions disposed rearwardly from the first end portions, respectively. A plurality of brake pads are connected to the plurality of levers and extend inwardly towards opposed sides of the wheel, respectively. The plurality of brake pads are disposed adjacent the first end portions of the plurality of levers, respectively.

A brake handle is connected to the frame and a cable mechanism cooperates with the brake handle for causing the plurality of brake pads to engage and disengage the wheel. The cable mechanism is connected to the brake handle and to the second end portions of the plurality of levers, respectively. The second end portions of the plurality of levers extend outwardly and away from the wheel.

The cable brake mechanism preferably includes a support member, and a first elongate cable having opposed end portions connected to the brake handle and the support member, respectively. The support member is disposed substantially medially

of the plurality of levers and preferably rearward of the plurality of brake pads. The brake mechanism further includes a second elongate cable connected to the support member and one of the plurality of levers, respectively. A third elongate cable is connected to the support member and another of the plurality of levers, respectively.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

The novel features believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a side elevational view showing a wheelbarrow including a brake system, in accordance with the present invention;

FIG. 2 is an enlarged bottom plan view of the apparatus shown in FIG. 1;

FIG. 3 is an enlarged side elevational view taken along line 3-3 shown in FIG. 2; and

FIG. 4 is an enlarged side elevational view of the brake handle shown in FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which a preferred embodiment of the invention is shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiment set forth herein. Rather, this embodiment is provided so that this application will be thorough and complete, and will fully convey the true scope of the invention to those skilled in the art.

The apparatus of this invention is referred to generally in FIG. 1 by the reference numeral 10 and is intended to provide a brake system for a hand-powered vehicle. The specific disclosure herein is that of a wheelbarrow, but the invention hereof is not limited to a particular type of hand-powered vehicle. Furthermore, it should be understood that the brake system may be sold separately and as an after-market assembly as well as a pre-installed assembly with a hand-powered vehicle.

The apparatus 10 includes a wheelbarrow having a frame 12 and a wheel 13 connected thereto. The apparatus 10 further includes a brake system 11 operably connected to the wheel 13 of the wheelbarrow. The brake system 11 includes a brake handle 14 connected to a handle portion of frame 12. Such a brake handle 14 may be operated in a conventional manner, as well known in the art and as perhaps best shown in FIG. 4.

Referring to FIGS. 2 and 3, an elongate cable 14 having opposed end portions is connected to the brake handle 14 and is directed forwardly beneath the container portion of the wheelbarrow. The cable 14 passes through a guide member 26 for connecting to a support member 16. Such a support member is disposed rearward of wheel 13 and substantially medially of frame 12. Second and third elongate cables 17, 18 are connected to the support member 16 and corresponding rearward portions of a pair of brake levers 19, 20, respectively. Such rearward portions are angled and extend outwardly away from support member 16.

Brake levers 19, 20 are connected to a plurality of elongate mounting brackets 23, 24 having opposed end portions connected to axle 25 and frame 12, respectively. In particular, axle 25 passes through wheel 13 and has opposed end portions disposed outwardly therefrom and to which corresponding front portions of mounting brackets 23, 24 are connected via conventional fastening members. A pair of brake pads 21, 22 are connected to corresponding front portions of the pair of levers 19, 20 and extend inwardly towards the outer edge portion of wheel 13. Such brake pads 19, 20 are operably engaged and disengaged with wheel 13 when an operator presses and depresses handle 14, respectively.

In particular, when brake handle 14 is pressed, cable 14 is pulled rearwardly to thereby cause cables 17, 18 to also move rearwardly, at support member 16. Such movement causes the rear end portions of the brake levers 19, 20 to move inwardly and pivot about corresponding fastening members disposed at a forward portion thereof, respectively. Likewise, when brake handle 14 is depressed, the brake pads 21, 22 are caused to move away from the wheel 13.

While the invention has been described with respect to certain specific embodiments, it will be appreciated that many modifications and changes may be made

by those skilled in the art without departing from the spirit of the invention. It is intended, therefore, by the appended claims to cover all such modifications and changes as fall within the true spirit and scope of the invention.